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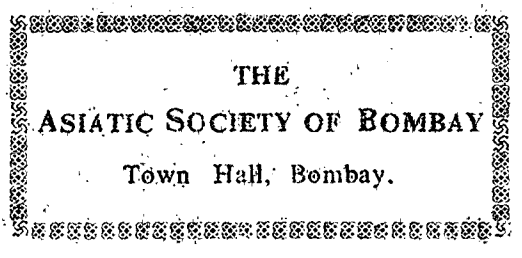

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SECTION OF FORD WAH.
Ruabon
SKETCH
Shewing position
of the
FORD WAH.

SELECTIONS FROM THE RECORDS OF THE BOMBAY GOVERNMENT.

No. XXXVI.—New Series.

OFFICIAL CORRESPONDENCE

REGARDING

THE FORD WAH,

IN THE

SHIKARPOOR COLLECTORATE, SIND.

108453

1855-56.

Bombay:

PRINTED FOR GOVERNMENT

AT THE

BOMBAY EDUCATION SOCIETY'S PRESS.

1856.

THE FORD WAH, IN THE SHIKARPOOR COLLECTORATE.

No. 230 OF 1856.

PUBLIC WORKS DEPARTMENT.

From Lieutenant Colonel JOHN JACOB, C.B.,
Acting Commissioner in Sind,

To the Right Honorable LORD ELPHINSTONE, G.C.H.,
Governor and President in Council, Bombay.

Dated 5th June 1856.

MY LORD,—I have the honour to forward a copy of official correspondence regarding the Ford Wah, or junction of the Western Narra Branch with the Gharr Canal, in the Shikarpoor Collectorate, together with a sketch map showing its position; and to recommend that, should your Lordship in Council see no objection, the papers connected with this useful work may be printed among the Selections from the Government Records.

I have the honour to be, &c.

(Signed) JOHN JACOB, Lieutenant Colonel,
Acting Commissioner in Sind.

Commissioner's Office, Kurrachee, 5th June 1856.

Extract Paragraphs 1 *to* 19 *of a Letter, No.* 383 *of* 1854, *in the General Department, dated* 15*th November* 1854, *from the Deputy Collector of Larkanah to the Collector, Upper Sind.*

SIR,—I have the honour to forward my usual annual canal clearance estimate.

2. A reference to the same will show that I have set down the canal clearance for the Gharr this year at Rs. 5,000, including in it a new canal proposed to be dug from the Narra to the Gharr.

3. The Amul Rao mouth, which was widened by your orders last year, requires little or nothing done to it. The Wukkur mouth requires to be here and there cleared, the cost for both being estimated at Rs. 600.

4. The usual number of labourers supplied for the Gharr amounts to 1,026, and this year it is the wish of the Zemindars that, of the above number, only some 200 should be sent to the mouths of the Gharr, to carry out whatever clearing is wanted, the rest being employed in excavating a new canal from the Narra to the Gharr; and for this reason I have shown the expenses likely to be incurred on this work in the Gharr clearance.

5. In addition to the 800 labourers that would thus be available for the proposed canal, those hereafter benefiting from it will contribute some 200 labourers, making in all 1,000.

6. The following rough chart shows the position of the Gharr and Narra, with other particulars. [See annexed Sketch Map.]

It is proposed to take the canal from the village of Bindee, Z, and to carry it straight to the village of Leinah Samptiah, Y, a distance of about five miles, and to dig it at an average depth of $9\frac{1}{2}$ feet, and breadth 30 feet.

7. It is calculated that 1,000 men can excavate this channel in about four months; they are to be subsisted in the same way as the Gharr labourers have annually been; Darogahs, Moonshees, &c. to be appointed as before.

8. The cost to Government is set down at Rs. 4,400, which I think will suffice.

9. The Gharr canal clearance expenses for two former years are as follows:—

1852-53	Rs. 2,265	8	3
1853-54	3,030	11	2

So that the canal clearance for the present year (1854-55) will be only some Rs. 2,000 in excess of last year; against which I now beg leave to mention a few of the advantages likely to accrue from the opening of the new canal.

10. North of the point Y, where it is proposed to connect by the new canal the Narra and Gharr, the "Kuruch" of water from the

latter-named stream is very great ; indeed, such a quantity being drawn off by its large branches, as the Nusrut, the Meer Wah, the Heera Wah, and the Humeer, that a scarcity has for the last two seasons been felt for many of the small canals in the Kumber and Nusseerabad Kardarates, including some in the Larkanah Kardarate south of the intended junction of the Narra and Gharr ;—indeed I attribute the quantity of "Kooshkie" last season partly to the above causes.

11. The assistance that may be anticipated to these districts, by throwing some of the Narra water into the Gharr, will be great.

12. The Narra has the last few seasons flowed with an unusual body of water, caused for the most part by direct overflows from the river ; indeed, in some places the rush into this stream was so great that it was unable itself to carry off the supply, and was obliged, therefore, to disgorge the overplus into the river again. Had the mouth of the Narra been this year bunded up, such was the force and extent of the Leyts,* that, I believe, during the height of the inundation no decrease in its depth of water would have been perceptible.

13. This excess of water in the Narra does a great deal of harm, rendering even the smaller branches from it almost unmanageable, causing the canal to overflow its banks in every direction, and thus to swamp much valuable land. My own experience when in charge of the Mehur Deputy Collectorate makes me feel sure that a diminution in the Narra water will he hailed as a great boon by the bulk of the cultivators in those districts.

14. My object is to draw off this excess, where it is now positively hurtful, and, by carrying it into the Gharr, make it useful in watering many a broad beega of land in these districts.

15. Not only will the lands south of the point Y be provided with an additional flow of water, but those now lying waste between Y and Z, simply on account of there being no means of irrigating them, will at once be brought under cultivation ; and from personal inquiry I find that during Khureef 1266 and Rubee 1267, 2,000 beegas of land, between Y and Z, hitherto uncultivated, will be sown, and an additional 1,000 beegas in Khureef 1267.

16. I can of course give no approximate of the increased cultiva-

* Direct overflow from the river.

tion to be expected on those lands south of Y, but on the two Koors alone, viz. the Datah and Shaee, in the Kumber Kardarate, I apprehend that next Khureef, 1266, a considerable increase will be apparent.

17. Apart from all advantages likely to be realised to the revenue, if only for the easy transit of goods during the inundation months, from and to Larkanah and the various towns on the Narra with Mehur on the Kukole, by boat traffic, this canal should, I think, at once be made. A boat leaving Larkanah, and bound, say for Phurrery, has, under the present arrangement, to track up to the mouth of the Gharr, a distance of 38 miles, taking, perhaps, six or seven days, then to drop down the river to the Narra's mouth, and, after entering the Narra, float down to Phurrery, taking another three days,—in all say ten days. With the new channel dug, a boat ought to go from Larkanah to Bindee in one day and a half, and then drop down to Phurrery in another day,—thus making a difference of some seven days in a boat going between Larkanah and Phurrery by the present and proposed route.

18. I trust I have clearly shown the advisability of the work in question, and I solicit your permission to commence the same on or before the 1st December next.

19. Any delay will prevent the canal being ready by next inundation, as well as hinder greatly the cultivation for the coming Peshrush.

(True extract)
(Signed) St. Clair Ford, Lieutenant,
Deputy Collector.

No. 2638 of 1854.

Revenue Department, Public Works.

To the Commissioner in Sind.

Sir,—In transmitting the accompanying correspondence from the Collector, Upper Sind, I have the honour to state that, provided the levels of the country and of the two streams, the Gharr and Narra, when in flood, are favourable, the project seems to me to be a very desirable one. There is no doubt that, arising from some cause, which I believe will be found to arise from the silting up of the lower

part of the Narra and of its outfall the Arul, the upper part of that stream overflows the Mehur Districts most injuriously for the revenue; and if the cut proposed will carry off that surplus water, it will relieve the tendency to flooding below its mouth, and give an additional quantity of water to the Gharr, which, however, should be cleared below the junction, so as to admit of the increased volume of water, otherwise the stream in the Gharr above that point will be checked, and a deposit will take place.

2. It is essential, however, that the flood-level of the two streams at the points where the new cut would unite them, and the section of the country, be first ascertained; and as Mr. Hardy will, by this time, I hope, be at Sukkur, he might, if the Collector thinks fit, devote his attention to this point before he does anything else.

I have the honour to be, &c.

(Signed) H. B. TURNER, Lieutenant Colonel,
Superintending Engineer in Sind.

Kurrachee, 24th November 1854.

No. 2655 OF 1854.

REVENUE DEPARTMENT.

True copy transmitted for the information of the Collector, Upper Sind, with reference to his memorandum No. 931, of the 18th instant.

(Signed) H. B. TURNER, Lieutenant Colonel,
Superintending Engineer Sind Division.

Kurrachee, 24th November 1854.

No. 953 OF 1854.

REVENUE DEPARTMENT.

True copy forwarded to Lieutenant Ford, with reference to his proposal of uniting the Narra and Gharr.

His attention may be necessary to the point mentioned in the conclusion of paragraph 1.

(Signed) T. R. STEWART, Major,
Collector, Upper Sind.

Shikarpoor Collector's Office, 27th November 1854.

No. 414 of 1854.

General Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—With reference to your endorsement No. 953 of 1854, in the Revenue Department, dated 27th November 1854, accompanying copy of Superintending Engineer's report No. 2638 of 1854, in the Revenue Department, dated 24th November 1854, I have the honour to state that I hope in a few days to forward an estimate of the cost of clearing the Gharr south of the junction.

2. The line, where it is proposed to take the canal, has been cleared of jungle, and made perfectly straight between the Narra and Gharr; and this morning I proceeded to Akil, and, in company with several Zemindars, carefully examined the ground, and made every possible inquiry as to the levels, &c., from which I may safely report that the levels of the country and of the two streams are favourable.

3. I have always found the Zemindars particularly knowing as to the levels of the country,—indeed one who was with me this morning would have been rather glad to have discovered some difficulty; ut he, with the rest, agreed that the line was most favourable.

4. It must be remembered that it is very improbable that 800 labourers can again be spared from the annual Gharr clearance, or that the Zemindars would be willing to give them; so that if we miss this opportunity, the expenses of the work will be greatly increased should it be hereafter carried out.

5. I observed many a beega of land that can be cultivated from Moke. I should say if the cut is made, and if commenced at once, those whose lands border on the proposed new canal will immediately make arrangements for digging new Kurriahs, &c. Any delay will prevent these desirable objects being carried out.

6. I respectfully beg to state that, unless the work is commenced before the 15th of this month, it cannot, I fear, be ready before the next inundation.

7. The Zemindars have agreed to give at once 800 labourers, and in two or three months to increase the number to any amount, so as to ensure the work being finished before next flood.

8. I may also mention that, consequent on the anticipated extra

volume of water in the Gharr, I have had applications for leave to dig a new canal from it opposite to where the junction is to be, to bring under cultivation waste lands in Deh Lahoree. Probably some assistance will be necessary from Government, on which a report will be made as soon as the new cut is ordered to be commenced.

9. Awaiting your speedy orders to begin,

I have the honour to be, &c.

(Signed) ST.CLAIR FORD, Lieutenant,
Deputy Collector.

Larkanah, Deputy Collector's Office, 2nd December 1854.

Extract Paragraph 2 *of a Letter, No.* 978 *of* 1854, *in the Revenue Department, dated 2nd December* 1854, *from the Collector of Upper Sind to the Deputy Collector of Larkanah.*

2. The new canal, proposed to feed the Gharr from the Narra, has, in a measure, been sanctioned by higher authority: some little delay may occur before the Surveyor is supplied with a levelling instrument.

(True extract)
(Signed) ST.CLAIR FORD, Lieutenant,
Deputy Collector.

No. 990 OF 1854.

GENERAL DEPARTMENT.

From the COLLECTOR, UPPER SIND,

To the DEPUTY COLLECTOR, LARKANAH.

SIR,—With reference to your letter No. 414, of the 2nd instant, and 6th paragraph thereof, I have the honour to inform you that, in the absence of any levelling instruments, I am unable to say whether the line of junction proposed will answer.

2. As, however, the Zemindars wish to begin it, they may do so on their own responsibility; but if it should be proved by the

respective levels of the two canals, when taken, that the junction ought not to be made, the work will of course be stopped.

I have the honour to be, &c.

(Signed) T. R. STEWART, Major,
Collector, Upper Sind.

Camp Donkun, Collector's Office, 6th December 1854.

No. 3538 OF 1854.

REVENUE DEPARTMENT.

From the COMMISSIONER IN SIND,

To the SUPERINTENDING ENGINEER IN SIND.

Dated 29th November 1854.

SIR,—In reply to your letter as per margin, I have the honour to inform you that I quite concur in the suggestion contained in your 2nd paragraph.

No. 2638, of the 24th November, on the proposition by Lieutenant Ford to throw an increased body of water into the Gharr.

I have the honour to be, &c.

(Signed) H. B. E. FRERE,
Commissioner in Sind.

No. 2680 OF 1854.

REVENUE DEPARTMENT, PUBLIC WORKS.

True copy transmitted for the information of the Collector, Upper Sind, with reference to his memorandum No. 931, of the 18th November 1854.

(Signed) H. B. TURNER, Lieutenant Colonel,

Hajeepoor, 4th December 1854. Superintending Engineer, Sind.

No. 996 OF 1854.

REVENUE DEPARTMENT.

True copy transmitted to the Deputy Collector of Larkanah, with reference to his letter No. 383 of 1854.

(Signed) T. R. STEWART, Major,
Collector, Upper Sind.

Camp Ruttadhera, Collector's Office, 7th December 1854.

No. 61 of 1855.

Revenue Department, Public Works.

To the Collector of Shikarpoor.

Sir,—Having ascertained from Mr. Hardy, Canal Surveyor, that a canal, to join the Gharr and Western Narra, has been commenced contrary to my opinion that the comparative level of the two streams should first be ascertained, and in which the Commissioner concurred (vide his letter No. 3538, of the 29th November, endorsed with my memorandum No. 2680, of the 4th ultimo), I have the honour to inform you that if, as is very probably the case, the flood-line in the Gharr, at the point where the junction is to be made, should be higher than the corresponding line in the Narra, the effect will certainly be to impoverish the stream in the Gharr, and to increase the flooding in the Narra.

I have the honour to be, &c.

(Signed) H. B. Turner, Lieutenant Colonel,
Superintending Engineer Sind Division.

Sukkur, 12*th January* 1855.

No. 5 of 1855.

From Mr. W. S. Hardy,
Canal Surveyor,

To Major T. R. Stewart,
Collector, Upper Sind.

Sir,—I think the new canal we are now digging had better be stopped, as I am almost certain the Gharr *is a rise;* if so, we are working entirely in the dark, and also be a great loss to Government if carried through and found impracticable.

On the arrival of my instruments I will immediately level the line, and give the bed its proper slope. All orders that you may give shall be strictly adhered to.

If the fall of the present line be not sufficient, the tail can be slightly turned.

I have the honour to be, &c.

(Signed) W. Hardy,
Canal Surveyor, Shikarpoor Collector.

Camp Orangabad, 13*th January* 1855.

No. 58 of 1855.

Revenue Department.

From the Collector, Upper Sind,

To the Superintending Engineer in Sind.

Sir,—In reply to your letter noted in the margin, I have the honour to inform you that I was aware the execution of the work in question was to depend on the result of the levels of the two streams, and I was most anxious to have the test made in order that the work might be done.

No. 61, of 12th January 1855, on the subject of the new Canal between the Narra and the Gharr.

2. A thousand men had been collected by the Zemindars, more anxious to carry it out than I have ever in any instance seen. No instruments were forthcoming. A Surveyor was on the spot, and he, as far as he could judge, was in no way apprehensive of any failure in the level of the country.

3. The question, therefore, was, were the labourers to be sent back, and the work to be set aside for another year; for it was calculated that the above number of men could scarcely finish the work in four months, but that double the number should be provided in the last available month, if circumstances should demand it.

4. The Deputy Collector was informed that, under the circumstances above stated, the Zemindars should be responsible if the levels should not answer, and that they might proceed with the work if they wished. It does not follow that either the Gharr or Narra should suffer injury if the levels of these two courses do not answer; for the work in question these two courses can be securely bounded.

5. The circumstance was reported briefly by me to the Commissioner, and it ought, perhaps, also to have been reported to you.

6. I am now, however, surprised to receive a letter from the Surveyor, dated Orangabad, the 13th instant (the day after that of your letter under reply), informing me that he is "almost certain the Gharr is a rise," and requesting that the work may be stopped. He is, and has for some time been, far removed from the locality, and it appears odd that he should now express doubts on the subject. But it is evident that no person could decide the point without instruments, and Mr. Hardy can, therefore, in no way be answerable for the results of the work.

7. It is calculated that the canal will cost the Zemindars, in labour, little under Rs. 18,000 or Rs. 20,000, and I think you will concur with me in thinking, that when they place confidence in their own notions of levels, and undertake such a work, it would scarcely be right in the Government officers to put a stop to it, unless on some certain grounds of objection or impracticability.

I have the honour to be, &c.

(Signed) T. R. STEWART, Major,
Collector, Upper Sind.

Camp Dejee, Collector's Office, 18th January 1855.

No. 59 OF 1855.

GENERAL DEPARTMENT.

True copies of correspondence as per margin forwarded to Lieutenant Ford, for his information, with reference to my letter to his address, No. 990, of the 16th December 1854.

No. 61 of 1855, from the Superintending Engineer in Sind; No. 5 of 1855, from Mr. Hardy, Canal Surveyor; No. 58 of 1855, from the Collector, Upper Sind.

(Signed) T. R. STEWART, Major,
Collector, Upper Sind.

Camp Dejee, Collector's Office, 18th January 1855.

No. 57 OF 1855.

REVENUE DEPARTMENT.

From the COLLECTOR, UPPER SIND,
To the DEPUTY COLLECTOR, LARKANAH.

SIR,—With reference to past correspondence on the subject of the new canal uniting the Narra and Gharr, I have the honour to suggest that as much as possible of the work be confined to the upper portion of the new cut, in order that the lower portion may be executed after the levels shall have been tested, when, if necessary, any alteration may be made in the present line, should it be found faulty.

I have the honour to be, &c.

(Signed) T. R. STEWART, Major,
Collector, Upper Sind.

Camp Khyrpoor, Collector's Office, 19th January 1855.

No. 20 of 1855.

Revenue Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—I have the honour to acknowledge the correspondence regarding the Gharr and Narra junction.

2. I may mention that the Zemindars have told me the canal, they think, ought, at its tail, to be turned round by Dhurya Khan Samptiah's village, where it will have a much greater fall.

3. As you say, no one can decide the point without instruments; still we may take it for granted that the Zemindars would not be so anxious to dig the canal if they did not know it would run the right way; and I would observe that there are at present some canals running from the Narra, watering lands near the Gharr, which shows pretty well where the rise is.

4. The Agamanee and other Zemindars have agreed to cultivate lands waste for years past from Kurriahs cut from the new canal, and have actually commenced digging them.

5. Your orders, contained in letter No. 57 of 1855, shall be attended to; but I beg that no stop may be put to the work till *it is clearly* proved the Zemindars are in the wrong; as doing so would do much harm, and upset many arrangements I am making for cultivating waste lands in the Kumber Kardarate, on the tails of the Koors, consequent on the anticipated extra volume of water.

I have the honour to be, &c.

(Signed) St.Clair Ford, Lieutenant,
Deputy Collector.

Camp Soojawal, Deputy Collector's Office, 23rd January 1855.

No. 153 of 1855.

Revenue Department.

To the Collector, Upper Sind.

Sir,—I have the honour to acknowledge the receipt of your letter No. 58, of the 18th instant, and, with reference to paragraphs 2 to 4,

beg to state that I was previously under the impression, from the memorandum received with your letter of the 4th instant, that 826 of the 1,026 labourers usually employed on the Gharr, or more than four-fifths, with, I conclude, a similar proportion of Rs. 5,000, say Rs. 4,000, were to be employed on this new cutting : if, then, the level should prevent the work effecting the object intended, Government would, I conceive, be losers to the extent of Rs. 4,000, and the value of the work of 826 labourers for the season.

2. From the latter part of your letter under reply, I now imagine that I was mistaken, and that the labourers employed on the new cutting are extra, and paid by the Zemindars ; in which case, as by closing up the two ends of the canal all injury from it can be prevented, I quite concur with you that it was advisable to allow the Zemindars to expend their own labour in the manner they have done.

3. My former letter was written under the apprehension that Mr. Hardy might have offered some opinion which led to the work being commenced before the levels had been ascertained ; and as I felt sure, if he had done so, the opinion was given on insufficient grounds, I thought it advisable to explain to you that, without the use of instruments, it was impossible to form any correct opinion of the levels, and that, if they were not favourable, the work, if completed, would have an injurious effect ; and I advised Mr. Hardy, if he had said anything calculated to mislead you, at once to inform you that, without ascertaining the difference of level, it was impossible for any one to judge in which direction the water would flow.

4. I hope to be in the Larkanah Districts myself about the 10th proximo, and will then ascertain the point definitively.

I have the honour to be, &c.

(Signed) H. B. Turner, Lieutenant Colonel,

Camp Shereghur, 26th January 1855. Suptg. Engineer in Sind.

No. 137 of 1855.

Revenue Department.

True copy forwarded to Lieutenant Ford, Deputy Collector of Larkanah, with reference to previous correspondence on the same subject.

(Signed) T. R. Stewart, Major,
Collector, Upper Sind.

Camp Oobowra, Collector's Office, 14th February 1855.

No. 39 of 1855.

Revenue Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—The Superintending Engineer in Sind having a few days since taken the levels of the country and of the two streams, the Gharr and Narra, pronounced the project of uniting the same favourable, and the work is therefore in full progress.

2. The total cost of the Ford Wah will be Rs. 23,466.

3. Of the labourers employed, Government has the right to the work of 825 for four months (this being the number taken from the Gharr mouth clearance, which usually lasts about that period), subsisting them, and giving Darogahs, &c. in the usual way.

4. The expenses to the Zemindars for these 800 men would be Rs. 12,375, and to Government Rs. 3,500.

5. Now subtract the Rs. 12,375 from the Rs. 23,466, and we have Rs. 11,091 as an extra amount to be laid out this year by the Zemindars on the new cutting.

6. I would now suggest that of this Rs. 11,091 Government bear Rs. 5,500, which, with the Rs. 3,500 shown in paragraph 4, gives Rs. 9,000 as the Government share.

7. Of the Rs. 9,000, Rs. 4,400 has already been sanctioned, leaving Rs. 4,600, for which sanction is now solicited.

8. There can be no doubt that the canal will throw a large extra supply of water into the Gharr, and be very useful for boat traffic, &c.

9. I am aware I at first recommended that subsistence only should be granted, which, with pay to Darogahs, &c. I calculated would cost Rs. 4,400 ; however, I now find that some 187,733 men will be required for the work, whose subsistence, with Moonshees, &c. would amount to Rs. 6,000, or Rs. 1,600 over my canal clearance estimate.

10. I need say nothing as to how the work has been and is being executed, as I hope you will inspect it in a few days.

I have the honour to be, &c.

(Signed) St. Clair Ford, Lieutenant,
Deputy Collector.

Larkanah, Deputy Collector's Office, 20th February 1855.

No. 820 of 1855.

Revenue Department.

From the Commissioner in Sind,
To the Collector of Shikarpoor.

Sir,—I have the honour to acknowledge the receipt of your letter as per margin, and, in reply, to inform you that the work in question is provisionally sanctioned, in anticipation of the approval of Government, to whom it will be necessary to apply for sanction, as the sum far exceeds what I have power to sanction, either from the annual grant for canals, or from any other source. I request, therefore, that Lieutenant Ford will favour me at his earliest convenience with a concise statement, showing, for the information of Government, the length and sectional dimensions of the canal, the total cost and proportion to be borne by Government and the Zemindars respectively, and the probable returns.

No. 91, dated 2nd instant, submitting a proposal by Lieutenant Ford for an additional sum of Rs. 4,600 being sanctioned for the new cutting between the Narra Branch and the Gharr Canal.

I have the honour to be, &c.

(Signed) H. B. E. Frere,
Commissioner in Sind.

Commissioner's Office, 9th March 1855.

No. 80 of 1855.

General Department.

From the Deputy Collector, Larkanah,
To the Collector, Upper Sind.

Sir,—With reference to the Commissioner's letter No. 820 of 1855, in the Revenue Department, dated 9th March 1855, and to mine as per margin, I have the honour to forward the information required, as per statement attached.

No. 39 of 1855, in Revenue Department, dated 20th February 1855, regarding sanctioning an extra Rs. 4,600 for the new Canal between the Narra and the Gharr.

2. In the 2nd paragraph of my letter, quoted above, I set down the total sum at Rs. 23,460, but this was estimating at the two-anna rate; but I have since found

the Zemindars paid their labourers higher wages, which has thrown out my former calculation.

3. The Government share is still Rs. 9,000, of which you are aware Rs. 4,400 has been sanctioned, leaving Rs. 4,600 to be so.

4. I may briefly sum up the advantages of the work as follows :—

1*st.*—To decrease the floodings from the Narra annually, so destructive to the Mehur Districts.

2*nd.*—To increase the volume of water in the Gharr, and thereby irrigate a larger area of land in the Talookas south of the junction than heretofore.

3*rd.*—To bring under cultivation several thousands of beegas of the Dehs through which the canal runs, now lying waste.

N.B.—Of these lands (waste), 4,500 beegas have been given in Putta to cultivate next Khureef, 1266.

4*th.*—The easy transit of goods by boat traffic from and to Larkanah and the towns on the Narra.

I have the honour to be, &c.

(Signed) St.Clair Ford, Lieutenant,
Deputy Collector.

Larkanah, Deputy Collector's Office, 28th March 1855.

No. 114 of 1855.

General Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—I have the honour to report, for your information, that the Ford Wah was completed yesterday evening.

2. I inspected the work along its whole length this morning.

3. Orders have been issued to throw open the mouth of the Narra.

I have the honour to be, &c.

(Signed) St.Clair Ford, Lieutenant,
Deputy Collector.

Larkanah, Deputy Collector's Office, 17th April 1855.

No. 423 of 1855.

Revenue Department.

From the Officiating Collector, Upper Sind,
To the Deputy Collector, Larkanah.

Sir,—In forwarding the accompanying copy of reply No. 1435, dated 30th ultimo, as per margin, from the Commissioner in Sind, I have the honour to inform you that I entirely concur in the sentiments expressed therein.

Reporting the completion of the Ford Wah.

I have the honour to be, &c.

(Signed) R. Cowpar,
Offg. Collector, Upper Sind.

Sukkur, Collector's Office, 5th May 1855.

No. 1435 of 1855.

Revenue Department.
Dated 30th April 1855.

Reply of the Commissioner in Sind to No. 175, *of the 20th April* 1855, *from the Officiating Collector of Shikarpoor, giving cover to a Letter from Lieutenant* Ford, *Deputy Collector, reporting the completion of the Ford Wah.*

The completion is very satisfactory, and creditable to Lieutenant Ford.

(Signed) H. B. E. Frere,
Kurrachee, 30th April 1855. Commissioner in Sind.

Extract from a Memorandum on Canals, No. 340 *of* 1855, *in Revenue Department, dated 25th September* 1855, *by Lieutenant* St. Clair Ford, *Deputy Collector of Larkanah.*

The Ford Wah has, however, more than answered the expectations regarding the increased volume of water in the Gharr, as we find that

north of the junction, at the village of Dhurya Khan Samptiah, the Gharr has, at the height of the inundation this year, flowed with two feet less water than last, whereas south of the junction, the Larkanah gauge shows that the Gharr water has risen four inches this year higher than it did last. This proves that the Ford Wah caused the Gharr to rise over two feet above what it would have done had it not been dug. Giving a rough guess, it may be set down that this extra two feet will make about Rs. 80,000 difference in the revenue of those lands watered by the Gharr and Ford Wah, and this sum is, I think, within the mark. The cultivation on the banks of the Ford Wah has not been nearly as much as was expected, only some 600 beegas having been brought under the plough. There are good reasons for this, however: in the first place, the water entering the canals so late, prevented any Peshrush cultivation, and when at last it did come, it soon left again; added to which, the heavy rain that fell during the few days the river remained at its full height greatly hindered the Khureef sowing. Again, the Ford Wah runs at a very rapid rate, having a fall of nearly two feet a mile, so that of course the branch canals from it, not being so favoured in this respect, gave but a scanty supply of water to the Zemindars who dug them, and, where lands adjoin them, nearly the whole volume of water that flowed from the Narra being carried into the Gharr.

The Zemindars one and all are much pleased with the work, and many declare that but for it they would nearly have been ruined, as they had laid out thousands of rupees in seed, &c. which would all have been lost to them but for the timely supply of water from the Ford Wah. As they bore the greater part of the expense of this cutting, their being satisfied is the best proof of the advantages or otherwise accruing from it.

The Ford Wah was commenced at the latter end of December 1854, and finished in the following April. It cost the Zemindars Rs. 19,560; Government has already given Rs. 4,400, and Rs. 4,600 remains to be sanctioned.

(True extract)

(Signed) St. Clair Ford,
Deputy Collector.

No. 364 of 1855.

General Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—A sum of Rs. 4,600 still remains to be sanctioned for the Ford Wah: may I request you will kindly let me know when this amount is likely to be allowed.

I have the honour to be, &c.

(Signed) St.Clair Ford, Lieutenant,
Deputy Collector.

Larkanah, Deputy Collector's Office, 13th October 1855.

No. 457 of 1855.

Revenue Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—The Superintending Engineer in Sind having yesterday inspected the Ford Wah, suggested that the banks should be repaired where any damage had been done during the late inundation, and recommended several other minor repairs.

2. The Zemindars benefiting by this canal are willing to give 200 labourers to carry out the requirements, provided Government will give the usual grain subsistence, and I have to solicit Rs. 700 towards thus paying the labourers, Darogahs, &c.

I have the honour to be, &c.

(Signed) St.Clair Ford, Lieutenant,

Larkanah, 28th December 1855. Deputy Collector.

No. 460 of 1855.

Revenue Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—With reference to previous correspondence, I have the

honour to request that the sum of Rs. 4,600, which still remains to be sanctioned for the Ford Wah, may be granted at an early date.

2. I beg to append an extract regarding the work from a memorandum on canals improved or dug last cold season in this district, forwarded to your office in September last.

3. It may be observed that Colonel Turner, Superintending Engineer in Sind, inspected the canal a few days since, and I have reason to believe he was much pleased with the same.

Colonel Turner suggested that the banks should be repaired where they have been cut into during the past inundation, and the same will be at once carried out. He also was of opinion that a very large body of water must have been directed into the Gharr by the new cutting.

4. I have little doubt myself, that but for the timely aid given by the Ford Wah, the Nusseerabad and Kumber Kardarates would have suffered great losses from want of water, and the large rice tracts that enrich these charges have dried up entirely.

I have the honour to be, &c.

(Signed) St.Clair Ford, Lieutenant,

Larkanah, 29th December 1855. Deputy Collector.

Extract Paragraphs 9 *and* 10 *of Letter No.* 44, *dated 7th January* 1856, *from Lieutenant Colonel* Turner, *Superintending Engineer in Sind, to the Commissioner in Sind.*

9. The repair of the banks of the Ford Wah is very necessary. When I levelled down it last year, and found the fall so great, I anticipated that it would scour, and so informed Lieutenant Ford. If the banks be not protected, I think this channel will greatly increase, and affect the value of the lands on the Narra. The sum asked is very moderate.

10. I therefore recommend that the following sums be sanctioned :—

For bunds in the Mehur, Pyr and Kukkur Districts ..	Rs. 4,840
For repairing or bunding the Bulrajee Bund	1,850
Repairing sluices on the Pyr Bunds	350
For repairing the Ford Wah Bunds	700
In all....	Rs. 7,740

No. 103 of 1856.

Revenue Department.

True extract forwarded to Lieutenant St.Clair Ford, Deputy Collector of Larkanah, for his information and guidance.

(Signed) T. R. Stewart, Major,
Collector, Upper Sind.

Collector's Office, 23rd January 1856.

No. 68 of 1856.

Revenue Department.

From the Deputy Collector, Larkanah,

To the Collector, Upper Sind.

Sir,—With reference to former correspondence regarding the Ford Wah, and to the sum of Rs. 700 lately given for certain necessary repairs to this canal, I beg to state that I was under the impression the Rs. 4,600 provisionally sanctioned by the Commissioner in Sind would be at once allowed, and it was with this hope the Zemindars were willing to furnish their share towards the work.

2. Such being the case, I have again to request that the Rs. 4,600 may be at once granted, or the season will be past for the canal clearances before anything can be done.

I have the honour to be, &c.

(Signed) St.Clair Ford, Lieutenant,
Larkanah, 12th February 1856. Deputy Collector.

No. 675 of 1856.

Public Works Department.

From the Acting Commissioner in Sind,

To the Collector of Shikarpoor.

Sir,—In forwarding the annexed copy of my letter noted in the margin, I have the honour to request that the sum of Rs. 4,600, for which the sanction of

To Government, No. 111, dated 27th Feb.

ruary 1855, applying for sanction of Rs. 4,600 on account of the Ford Wah Canal.

Government has been solicited, may be disbursed from your Treasury at once, and so enable the labourers lately employed on the Ford Wah to return to their homes.

I have the honour to be, &c.

(Signed) JOHN JACOB, Lieutenant Colonel,
Acting Commissioner in Sind.

Camp Larkanah, Commissioner's Office, 8th March 1856.

No. 676 OF 1856.

PUBLIC WORKS DEPARTMENT.

True copy forwarded for the information and guidance of Lieutenant Ford, Deputy Collector of Larkanah.

(Signed) JOHN JACOB, Lieutenant Colonel,
Acting Commissioner in Sind.

Camp Larkanah, Commissioner's Office, 8th March 1856.

No. 111 OF 1856.

PUBLIC WORKS DEPARTMENT.

From the ACTING COMMISSIONER IN SIND,

To the Right Honorable LORD ELPHINSTONE, G.C.H.,
Governor and President in Council, Bombay.

MY LORD,—I have the honour to solicit sanction to an outlay of Rs. 4,600, under the following circumstances. Rather more than a year ago, the Zemindars cultivating in the neighbourhood of the Gharr Canal, in the Larkanah Districts, proposed to connect this stream with the Narra by a new cut, which they agreed to dig at their own cost, provided Government would consent to subsist the labourers during the period they might be employed on the work.

2. The Collector recommended this outlay on the part of Government, and included in his annual canal clearance estimate a sum of Rs. 4,400 on such account. The Commissioner, in consultation with

the Superintending Engineer, agreed that the work was both important and emergent, and accordingly it was proceeded with, and completed in the spring of last year.

3. As the work progressed, it was discovered that an under estimate had been formed of the number of labourers required for the cutting, and of the rates at which these labourers could be subsisted. A revised estimate was therefore submitted to the Commissioner, soliciting an additional sanction for Rs. 4,600, as the work in the interim had been nearly completed, and any interruption would have very injurious results. This further outlay was provisionally sanctioned, and the district officers were directed to forward a summary of the results that might be anticipated from the cutting, in view to the same being laid before Government. This call was responded to; but the information supplied was by some oversight allowed to lie over until the inundation had set in.

4. Mr. Frere therefore considered it advisable to call upon the Deputy Collector of Larkanah for a statement of the benefits which *actually* accrued consequent upon the cutting during the past season, and the statement supplied is highly satisfactory. It shows that the work has tended to relieve the Narra of those floods which formerly proved so injurious to the districts and revenue of Mehur, and it has afforded a direct and cheap channel for traffic between the villages on the Narra and Larkanah; that 4,500 beegas on the banks of the cutting itself have been given in lease; and that a rise of nearly two feet of water was created in the Gharr, causing an increase in the one year's revenue of about Rs. 80,000, or nearly nine-fold the total amount which the work will cost Government.

5. The length of the cutting is $5\frac{1}{3}$ miles. Its average depth is 10 feet, with a breadth at bottom of 30 feet. It is estimated that the proportion of the cost borne by the Zemindars amounts to Rs. 19,560, and I trust that Government will deem fit to accord an early sanction to the outlay of Rs. 4,600 expended under provisional sanction.

6. In conclusion, your Lordship in Council will, I hope, concur with me in thinking that the projection and execution of this very remunerative public work reflects the highest credit upon Lieutenant Ford, the Deputy Collector of Larkanah.

I have the honour to be, &c.

(Signed) JOHN JACOB, Lieutenant Colonel,

Commr.'s Office, 27th February 1856. Actg. Commr. in Sind.

No. 714 of 1856.

Public Works Department.

To the Acting Commissioner in Sind.

The Chief Engineer of Public Works.

Bombay Castle, 28th March 1856.

Letter from the Acting Commissioner in Sind, No. 111, dated the 27th February 1856, soliciting sanction to an outlay of Rs. 4,600, expended in cutting a new canal from the Gharr to the Narra.

Resolution of Government on the above, dated the 21st March 1856.
(Extract Paragraphs 1 and 2.)

1. Sanctioned, as an emergency of 1855-56.

2. Government are gratified that they can concur, from the data before them, in Lieutenant Colonel Jacob's encomium on Lieutenant Ford's sagacity in projecting this work, though the data are not sufficient to explain the cause of the deficiency in the original estimate.

No. 941 of 1856.

Public Works Department.

True extract forwarded for the information and guidance of the Collector of Shikarpoor, and for communication to Lieutenant Ford, in reference to the Collector's letter No. 24, of the 10th January last.

(Signed) John Jacob, Lieutenant Colonel,
Acting Commissioner in Sind.

Commissioner's Office, Camp Peer Putta, 8th April 1856

No. 456 of 1856.

Public Works Department.

True copy forwarded to Lieutenant Ford, for his information and guidance, with reference to his report No. 24, of the 10th January last.

(Signed) T. R. Stewart, Major,
Collector, Upper Sind.

Shikarpoor Collector's Office, 11th April 1856.

Extract of a Report from the Superintending Engineer in Sind, No. 710, dated 12th April 1856.

Though I had very little to do with the undertaking, I consider it right to mention my firm belief, that but for the Ford Wah connecting the Narra with the Gharr, the revenue of the Larkanah Deputy Collectorate, which was in excess of that of the previous year, would, in a great measure, have been lost. Lieutenant Ford was not only the projector of that valuable work, but it was owing entirely to his great personal influence with the Zemindars that the work was completed in one season.

No. 1037 of 1856.

Public Works Department.

True extract forwarded to the Collector of Shikarpoor, for communication to Lieutenant Ford.

(Signed) John Jacob, Lieutenant Colonel,
Acting Commissioner in Sind.

Camp Gharra, Commissioner's Office, 18th April 1856.

APPENDIX A.

Statement showing the Length, Dimensions, Cost, &c. of the New Cutting between the Narra and Gharr, as called for in Commissioner's Letter No. 820 *of* 1855, *in Revenue Department, dated 9th March* 1855.

Nature of Work.	Dimensions of Canal.				No. of Cubic Feet of Excavation.	Rate per Rupee.	Total Cost, including Pay to Darogahs,* Moonshees, &c.	To be borne by Zemindars.	To be borne by Government.	Remarks.
	Length.	Average Depth.	Breadth at Bottom.	Side Slopes.						
							Rupees.	Rupees.	Rupees.	
Canal from the Narra to the Gharr.	5 miles and 1,760 feet.	10 feet.	30 feet.	1 in 1	11,264,000	~ 400	28,560	19,560	9,000	

* Pay to Darogahs, &c. amounts to some Rs. 400.

(Signed) St. Clair Ford, Lieutenant,
Deputy Collector.

Larkanah, Deputy Collector's Office, 29th March 1855.

Note.—The actual revenue to Government realised in 1855-56, and solely due to the Ford Wah, is reported in a memorandum from the Acting Commissioner of Sind, dated 4th September 1856, to have amounted to Rs. 80,000.

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